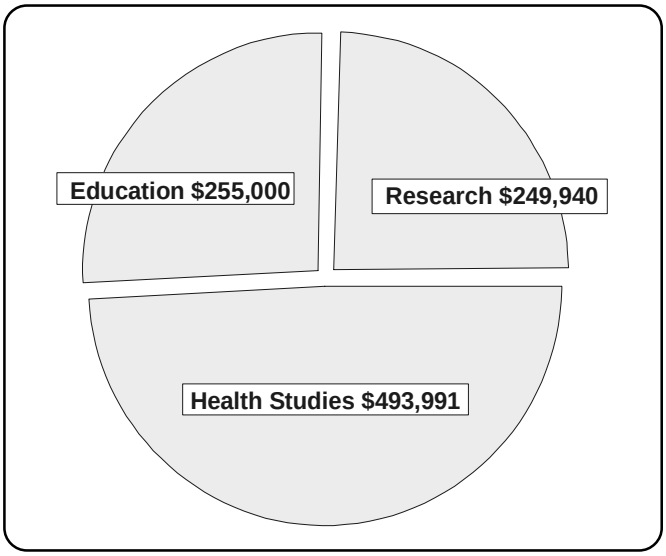
Activities in Mississippi

ATSDR in Partnership with Mississippi

The Agency for Toxic Substances and Disease Registry (ATSDR) is the lead public health agency responsible for implementing the health-related provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). ATSDR is an Atlanta-based federal agency with 400 employees. ATSDR's annual budget for 2002 is $78 million. ATSDR is responsible for assessing the presence and nature of health hazards at specific Superfund sites, helping to prevent or reduce further exposure and illnesses that result, and expanding the knowledge base about the health effects of exposure to hazardous substances.



ATSDR works closely with state agencies to carry out its mission of preventing exposure to contaminants at hazardous waste sites and preventing adverse health effects. ATSDR provides funding and technical assistance for states to identify and evaluate environmental health threats to communities. These resources enable state and local health departments to further investigate environmental health concerns and educate communities. From 1988 through 2001, ATSDR awarded more than **$998,931** in direct funds and services to the state of **Mississippi.** In addition to direct funds and services, ATSDR staff provides technical and administrative guidance for state-conducted site activities.

ATSDR Site-Specific Activities

Public Health Assessment-Related Activities

One of the agency's important mandates is to conduct **public health assessments** of all National Priorities List (NPL) sites and of other sites where there might be a significant threat to the public health. In **Mississippi** there have been **8** sites designated to the NPL.

A **public health assessment** provides a written, comprehensive evaluation of available data and information on the release of hazardous substances into the environment in a specific geographic area. Such releases are assessed for current or future impact on public health. ATSDR staff, in conjunction with public health and environmental officials from **Mississippi**, has conducted **8** health assessments in the state. The following are examples of public health assessments conducted in **Mississippi**.

American Creosote Works, Inc. – American Creosote Works, Inc. is located in **Louisville**, **Winston County**. It is a former wood preserving and timber processing facility that operated from 1912 until 1998 and covers approximately 120 acres. There are eight monitoring wells on the site. Creosote refers to a variety of products that are mixtures of many chemicals and is often used as a wood preservative. The International Agency for Research on Cancer has determined that creosote is probably carcinogenic to humans. There have been hits of creosote in the groundwater but nothing of any significance. The U.S. Environmental Protection Agency (EPA) plans to install a monitoring well in the aquifer from which the municipal water supply is drawn to show that it is not being impacted by site contaminants.

There is interest in using a portion of the site for a water-based treating process called Chromated Copper

Arsenate (CCA). If there are no major objections from the community, EPA will work to clean up the parts of the site of interest for the CCA process. The areas to the west and northwest of the site are residential. ATSDR is in the process of conducting a public health assessment and is reviewing recent sampling data. ATSDR staff has attended two public availability sessions for the site.

Davis Timber Company - The Davis Timber Company site is in southeastern **Mississippi**, approximately six miles northwest of **Hattiesburg**. The company conducted timber processing and wood preserving operations at the site beginning in 1966. Wood treatment operations using pentachlorophenol (PCP) began at the present location in 1972 and continued until 1987. The **Mississippi Department of Environmental Quality** has documented intentional and accidental releases of contaminants from the facility's wastewater treatment holding ponds over many years. Fish kills have occurred on the lakes and ponds downstream of the site. Fish from the impacted lakes have been contaminated with PCP and various chlorinated dioxins and furans.

In 2002, ATSDR conducted a public health assessment for this site. ATSDR concluded that the Davis Timber Site is currently a public health hazard because of physical hazards on the site that could cause bodily injuries to children and adults who trespass on the site. The site was a public health hazard in the past, because residents who ate contaminated fish from Country Club Lake were exposed to dioxins and furans at levels of health concern. The estimated amount of dioxin exposure in some residents who repeatedly ate fish from the lake might have increased the possibility of altered social behavior, increased the possibility of thyroid cancer, and caused mild damage to the immune system. The Davis Timber Site is a future public health hazard, because dioxins and furans are present in on-site soils and sediment. Should the site become residential, children and adults could have greater, daily contact with contaminated soils. Insufficient information exists about the degree of surface and subsurface soil contamination on the site.

A **health consultation** is a written or oral response from ATSDR to a specific request for information about health risks related to a specific site, chemical release, or hazardous material. It is a more limited response than a public health assessment. To date, **19** documented health consultations have been conducted at **12** sites in **Mississippi.** Below are examples of health consultations conduced in the state.

Dupont Chemical Company – The Dupont Chemical Company Plant in **DeLisle** is a titanium dioxide manufacturing plant. The facility injects several million pounds of hazardous waste (iron chloride) into underground injection wells every year. In 2001, ATSDR was petitioned to conduct a health consultation by the plant's former workers and local residents who feel this site has impacted their health. The main concern is heavy metal contamination in groundwater, but ATSDR will also investigate air exposure. Past groundwater sampling data indicate that metals such as arsenic, barium, beryllium, lead, and volatile organic compounds (VOCs), such as tetrachloroethane, have been detected. ATSDR is in the process of conducting a health consultation at this site.

Wood Treating, Incorporated – In 1999, the U.S. Environmental Protection Agency (EPA) Region IV requested ATSDR review data for the Wood Treating, Inc. site located in **Picayune, Pearl River County**. The purpose of the request was to determine if levels of contaminants that migrated off-site warranted the posting of warnings and fencing to limit human exposure. The property is located in a mostly residential area and residents had access to the site, drainage ditch, and nearby stream (Mill Creek).

Based on the data from two samples taken off-site downstream of the facility, semi-volatile organic contamination was detected. ATSDR concluded that exposure may result in a potential increase in risk for some children. ATSDR recommended restricted access to the site until additional sampling could be conducted to determine the nature and extent of contamination.

Public Health Advisories

If an imminent threat to public health is found during the performance of a public health assessment or an emergency health consultation, a **public health advisory** may be issued.

A public health advisory is a statement of findings by ATSDR that a substance released into the environment poses a significant risk to human health. It also includes recommended measures to reduce human exposure and eliminate, or substantially mitigate, the significant risk.

The advisory is issued to the EPA for its consideration in the management of the site and to inform the state health department, local officials, and the public about recommended activities at the site. In **Mississippi**, ATSDR issued the following public health advisory.

Methyl Parathion Public Health Advisory – In November 1996 in **Jackson County, Mississippi**, ATSDR and EPA discovered that more than 1,100 homes were contaminated with the agricultural pesticide methyl parathion by 2 unlicensed pesticide applicators. Methyl parathion is a pesticide legally restricted to outdoor agriculture use on non-food crops because of its chemical similarity to some forms of nerve gas. In December 1996, ATSDR issued a public health advisory warning the public of the ongoing imminent health threat presented by exposure to the pesticide. As a result of the public health advisory and the public health response that is ongoing, it has been discovered that more than 2,400 homes and businesses in 39 different counties in **Mississippi** (as well as areas of Alabama, Louisiana, Tennessee, Arkansas, Texas, and Illinois) have been sprayed with this highly toxic pesticide. More than 1,700 facilities have been sampled, 1,436 citizens have been relocated (including 480 children), and approximately 25% of the homes tested have levels that warrant decontamination.

To deal with the magnitude of this exposure and seriousness of the public health threat, a multi-agency response involving 16 federal, state, and local health and environmental agencies was mounted to define exposure levels, inform, relocate, and educate affected families. The **Mississippi State Department of Health (MSDH)**, as primary coordinating agency during this crisis, took a leadership role in developing new protocols to deal with this environmental public health problem.

Health Studies

Health studies are conducted to determine the relationship between exposures to hazardous substances and adverse health effects. They also define health problems that require further investigation through, for example, a health surveillance or epidemiologic study.

Following are descriptions of the site-specific health studies and investigations that ATSDR has conducted or supported in the state of **Mississippi**.

Long-Term Health Effects of Methyl Parathion in Children, A Follow-Up Study – To investigate the long-term health effects of methyl parathion exposure in children, ATSDR conducted neurobehavioral testing on children from **Mississippi** and Ohio who were 6 years of age or under at the time of methyl parathion spraying. Children's exposure status was determined by results of environmental wipe samples for methyl parathion from residences and urine testing for paranitrophenol (a metabolite of methyl parathion).

ATSDR collected data that included: 1) a computer assisted personal interview, and 2) the pediatric environmental neurobehavioral test battery (PENTB). The PENTB consists of interviews and questionnaires for the parent/guardian and neurobehavioral testing of children 4 years of age and older. Data were collected in summer 1999 (Year 1) and again in summer 2000 (Year 2). In Year 1, 146 children in Ohio and 181 children in **Mississippi** participated in the study; in Year 2, 106 (73%) children in Ohio and 154 (85%) children in **Mississippi** participated. Currently, Year 1 and Year 2 data are being analyzed. ATSDR is considering conducting a third year of the study but only testing a subset of the original population.

Hazardous Substances Emergency Events Surveillance System (HSEES) – The Hazardous Substances Emergency Events Surveillance System (HSEES) was established by ATSDR in 1990 to collect and analyze information about releases of hazardous substances that need to be cleaned up or neutralized according to federal, state, or local law, as well as threatened releases that result in a public health action, such as an evacuation. The goal of HSEES is to reduce the morbidity and mortality experienced by first responders, employees, and the general public resulting from hazardous substances emergencies. The HSEES system is used to generate information for use by states to conduct activities to support this goal. A total of 16 state health departments were awarded cooperative agreements, including **Mississippi.** HSEES captures data on over 5,000 events annually.

Educating Health Professionals and Community Activities

Since 1989, ATSDR has undertaken significant health education efforts at two sites in the state of **Mississippi**. These are the **Newsom Brothers/Old Reichold Site** in **Marion County** and the activities at the **Jackson County Methyl Parathion Site** described below.

The resources available from ATSDR to use in a health education effort at the Jackson County Methyl Parathion site included the Case Studies in Environmental Medicine Series. This is a series of self-instructional publications designed to increase primary care providers' knowledge of hazardous substances in the environment and to aid in the evaluation of potentially exposed patients. Two resources that were used at the Jackson County site were the ToxFAQ Fact Sheet developed by ATSDR for methyl parathion and the National Alert on the Illegal Use of Methyl Parathion Insecticide.

In September 1997, a comprehensive health education document was developed by ATSDR titled, "Methyl Parathion and Public Health: Information for Response to Indoor Application." It was distributed to state health departments as a support for public health agencies responding to new discoveries of methyl parathion exposure. Many of the resources included in the document came from materials developed for the **Mississippi** methyl parathion response. In addition, the materials were used for training nurses in **Mississippi** regarding methyl parathion, and assisted with the Mississippi Regional Poison Control methyl parathion project.

Minority Health Program

A major component of the ATSDR Minority Health Program is the **"Mississippi Delta Project: Health and Environment."** The project began in 1994 as a multi-phase initiative designed to identify and address environmental and other factors that negatively impact human health within a key geographic area. The goal of the project is to prevent or mitigate adverse health effects and reduced quality of life in disadvantaged populations living in communities impacted by identified environmental hazards in the Mississippi Delta Region. This goal is being realized through partnerships with federal agencies, state departments of environmental quality, local health departments, faith-based groups, local community groups, public schools and institutions of higher education, particularly those that serve large minority populations.

The first phase of the Mississippi Delta Project was to determine, through a needs assessment, human health problems in the region that are linked to environmental hazards. Phase II of the project was to support communities in the Delta through funding a limited number of projects to address problems and/or needs that were identified in Phase I; and for developing intervention strategies appropriate for preventing adverse health and environmental impacts. The Minority Health Program developed successful collaborative partnerships with community-based organizations to conduct demonstration projects.

In **Mississippi**, a smoking cessation project was implemented through the Jackson-Hinds Comprehensive Health Center called the "Butt Out and Be Healthy Program." Phase III of the Mississippi Delta Project will focus on regional health and environmental promotion.

Substance-Specific Research

Research Program to Study the Dermal Toxicokinetics of Methyl Parathion - With funding from ATSDR, the **University of Mississippi Medical Center** conducted this study to monitor the toxicokinetics of methyl parathion in female rats during chronic dermal exposure. The study compared the toxicokinetics following chronic dermal and oral exposure and measured its transfer to and distribution within the fetus.

Data obtained from this study will be important in modeling the toxicokinetics of methyl parathion following different routes of exposure. It will also assist in determining the need for and design of additional toxicological and epidemiological studies of methyl parathion.

Toxicological Profiles

ATSDR develops toxicological profiles for substances found at NPL sites that describe health effects, environmental characteristics, and other information. These profiles contain information on pathways of human exposure and the behavior of hazardous substances in environmental media such as air, soil, and water. To date, more than **480** of these profiles have been supplied directly by ATSDR to requesters in the state of **Mississippi**; including representatives of federal, state, and local health and environmental departments; academic institutions; private industries; and nonprofit organizations.

If you would like additional information, contact ATSDR toll-free at (888) 42ATSDR, that is, (888) 422-8737 or visit the homepage at http://www.atsdr.cdc.gov